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ASTER YELLOWS

TEXAS AGRICULTURAL EXTENSION SERVICE
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Aster Yellows

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Identification

Plants are stunted. Numerous, secondary shoots are produced. Foliage is yellow and seed usually are sterile. Plants have an upright growth habit. In many plants, the veins of immature leaves are clear. Affected leaves are narrower than healthy leaves. Old leaves may develop a slight red, brown or purple tinge in the late stages. The main branches are a shorter than normal distance apart where attached on the main stem. Flower parts may develop into leafy structures. In lettuce, the yellow heart leaves fail to develop and have pink to tan spots. There is a curling and twisting of inner leaves. Infected plants may fail to head. In carrots the tops become yellow, stunted and bunchy. Many small rootlets develop on the carrot.

Plants Affected

Aster yellows is known to affect 300 different species of plants. The ones listed below, especially lettuce and carrot, probably are most important:

CROPS: buckwheat, carrot, flax, lettuce, onion, potato (Irish), parsnip, red clover, salsify, spinach, tomato.

FLOWERS: calendula, centaurea, China aster, chrysanthemum, clarkia, cockscomb, coreopsis, cosmos, gaillardia, marigold, nemesia, Paris daisy, periwinkle, petunia, phlox, scabiosa, snapdragon, Statice, strawflower, veronica, zinnia.

WEEDS: Daisy fleabane, dandelion, horseweed, plantain, ragweed, wild lettuce.

Life History

The virus overwinters in leafhoppers or perennial host plants. Leafhoppers spread the virus after feeding on diseased plants 9 to 14 days. Virus-carrying leafhoppers can spread the virus disease 100 or more days after becoming infective. The virus particles are known to multiply in the insects.

The ability of leafhoppers to transmit the disease is reduced in hot weather. Overwintering of the virus occurs more often in plants which leafhoppers prefer to feed on. The time required for symptoms to show in plants after insect feeding is 10 to 40 days or longer. The disease can be serious when dry weather forces leafhoppers to move from wild weeds to irrigated fields of susceptible plants.

A dozen species of leafhoppers are shown to transmit the virus from diseased to healthy plants. The six-spotted leafhopper is one of the most common carriers in Texas. Leafhoppers are slender, wedge-shaped, delicate insects, usually 1/8 inch or less in length. They are very active and hop considerable distances when disturbed. The adult and young of the six-spotted leafhopper are light green-yellow with several pairs of tiny black dots on the face.

Control

Early control of leafhoppers on lettuce and carrots may prove of value in some years when these insects appear in damaging numbers. Make frequent checks for the presence of leafhoppers on young lettuce and carrots or on wild host plants growing nearby. If leafhoppers are found, apply insecticides at weekly intervals. Use 5 percent DDT or 5 percent malathion dust at the rate of 20 pounds per acre or as a spray apply 2 to 3 quarts of a 25 percent DDT emulsion concentrate or 1 to 1½

pints of a 5-pound malathion concentrate per acre. *Do not apply DDT after the heads form on lettuce or within 10 days of harvest on carrots. Do not apply malathion within 7 days of harvest of either crops.*

Precede cultivation, weeding and other field operations during the growing season with insecticidal applications; keep field, irrigation ditch banks and surrounding area free of weeds. Avoid following one susceptible crop after another in the rotation. In general, control of leafhoppers is more necessary in dry years when the insects migrate from wild hosts to irrigated commercial fields.

Plants growing in small areas may be shielded from leafhoppers that transmit the virus. Effective shielding materials are cloth covers not coarser than 22 x 22 per inch and wire of 18 meshes to the inch. Pull out and destroy affected plants in small areas as soon as they appear to be diseased.

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